August Mixed Waste Subgroup Highlights

The Hanford STCG Mixed Waste (MW) Subgroup met on August 10, 2000 in the EESB Stampede Room at 1:00 p.m.

Jim Sloughter distributed information and discussed the MW S&T activities taking place at Hanford that Fluor Technology Management is following. There were six activities that Jim discussed and $1.4 million is being spent on these activities. A proposal was sent to the MWFA to deploy gasification/vitrification technology to treat Hanford organic lab-packs and PCB-contaminated waste. This proposal for $480K was made after the MWFA requested proposals from the DOE Complex focussing on small quantity, problematic waste streams that exist at most sites. The submitted proposal is based on a similar one sent in as an ASTD proposal in March. No feedback on the latest submission to the MWFA has been received.

The MWFA was provided $881K for FY01 to be divided between PNNL ($150K) and NETL ($731K). Sharon Bailey will be working on determining the amount and type of long-length/oversized equipment and what needs to be done to dispose of it. Additional funds are expected over the next two years to develop the strategies in dealing with this waste. This effort is in support of the M-91 TRU waste project. Jim mentioned that Rocky Flats is putting in a glovebox size reduction system starting in September. Robbin Duncan could present information on this system at a future meeting.

The Remote Handled (RH) TRU Technology Insertion Point (TIP) was completed on time. This was done by completing the Project Management Plan (PMP) for TRU and TRU MW and submitting it to the Washington State Department of Ecology by June 20, 2000. The PMP identifies the requirements, actions and costs to provide the capabilities for retrieving and processing Hanford Site RH TRU waste including CH TRU waste in large containers and bulk liquids in drums. There has been no feedback from Ecology yet.

Jim has started to gather the MW S&T needs for Hanford. The subgroup will review the needs next month. There will be more on the schedule later in the meeting from Rick Wible.

Fluor Hanford has initiated a series of technical reviews of which one is underway concerning the PMP for the M-91 project discussed above. This is a very broad view of the PMP to identify technology needs. An external review board met the first week in August and is focusing on characterization and size reduction technologies. The board is working with the project and will issue a final report on their findings in September.

A pollution prevention proposal will be funded for $556K to assay CH containers using mobile assay equipment at storage locations thus avoiding transporting

them to WRAP for assaying. Any containers found to be low-level would then be returned to the burial ground for permanent storage. The life cycle cost savings from this approach are very high.

Rick Wible stated that the guidance and the endorsement schedule for the Hanford S&T needs are now addressed in the BUG (Baseline Updating Guidance). This is an integration of S&T planning into the overall site planning efforts. The contractor organizations on site are to submit the needs to DOE-RL on September 8. The subgroups will get the needs on September 25 for review, discussion and then endorsement. The final set of endorsed needs are due back to DOE by November 3 with changes after the subgroup members' review. The needs are to be put into the DOE-HQ database by January 12, 2001. In addition, the Hanford STCG needs statements compact disk and STCG web pages are to be updated by January 12 as well.

Bill Bonner discussed the TTPs that PNNL has with the MWFA. In addition to the Long -Length Equipment Project funding mentioned earlier for Sharon Bailey's efforts, there are two other research projects funded this year. One is the SAMMS work to remove Hg from organic waste. This is targeted at Mound and SR waste. Sharon Bailey is also involved with the robotics HANDS-55 Project. The PNNL effort is to develop end-effectors for sorting waste. The intent is to develop a mobile system to perform WRAP-like work at SR and INEEL. For further information on these projects contact Bill Bonner.

The remainder of the subgroup meeting was a viewgraph presentation and discussion by Larbi Bounini of the M-91 Project. As mentioned above, the TPA milestone M-91-03 was met on June 30, 2000 by the issuance of the Hanford Site TRU/TRUM Waste Project Management Plan (PMP) to Ecology. The proposal addresses the acquisition of physical facilities for retrieval, storage, and treatment/processing of all non-WRAP streams. Included in these waste streams are all RH TRUM, all non-drum CH TRUM and CH drums containing bulk liquids and special wastes. All wastes of the above types, both stored after 1970 and forecast, are included. The PMP requires facility description, facility performance specification requirements and capacity needs, and project schedule and costs. The PMP must be flexible but clearly define the project and must meet the requirements of a TIP.

Larbi discussed the challenges that were faced in trying to write the PMP. The information needed to develop a technical baseline is not available yet. The waste treatment standards and requirements are not defined for all the waste categories or they are changing. Waste stream volumes and characteristics are difficult to determine with certainty, especially TRU waste generation numbers. The facility location cannot be selected yet because the technical baseline is not developed well enough to allow for a proper risk assessment. The SW-EIS ROD will be issued after the PMP and may affect the project. WIPP may schedule a

limited time window for receipt and disposal of RH TRU, which would become an important project driver.

Larbi then reviewed the forecast of waste volumes to be handled by M-91. For the larger size CH TRUM there is 8,200 m^3 in storage and 4,500 m^3 to be generated. For RH TRUM there are 210 m^3 in storage and 1,700 m^3 to be generated. Thus of the total, CH TRUM makes up 87% of the waste. Also, 58% is now in storage and 42% to be generated in the future. Larbi also reviewed the definitions of the containers to be handled, which were small, large, and extra large for both CH and RH waste.

There are two disposition options outlined in the PMP that Larbi reviewed. The first option has all the CH and RH wastes going to WIPP after processing except for a few waste streams. The largest of the exceptions is the Long-Length Equipment that will be disposed of with the tank hardware by the Tank Programs on-site. The flowchart for both the CH and RH waste streams were shown for the first option. Almost all CH waste will be re-packaged into WIPP certifiable containers with all the wastes going through vitrification and certification at WRAP before shipment to WIPP. There would need to be a new facility to sort, repack, size reduce and process wastes before WRAP could certify the shipments to WIPP. It may be necessary to deactivate the sludge before neutralizing and solidifying it. All RH activities would require a new facility, as WRAP is not able to handle RH waste.

The second disposition option has the majority of CH waste ending up at WIPP as in option one but some specific waste types will be treated and left in place at Hanford. The waste that may be left in place include the 200 Area caisson waste, ion exchange modules, containers weighing greater than 18 m^3 tons, and breached/questionable integrity containers. This results in less processing of CH and RH TRU wastes than in option one. The two flowcharts for option two for CH and RH TRU wastes were reviewed and are very similar to those for option one.

Larbi showed the summary schedule that was done for the PMP. It is done in years without dates since the start date is unknown. The start date is to be negotiated with Ecology and is very dependent on funding from DOE. The TPA milestone states that hot operations will start in 2006. The date is not realistic since it takes 8 years to get to that point and the project hasn't started yet. Waiting is not all bad as the waste stream information will become clearer with time. Also, the SW-EIS may be finalized in the near future also. Some of the issues addressed in the change request that was submitted to Ecology include changing the project start date for the CH portion from 12/02 to 12/04 and the RH portion from 12/02 to 12/06. These changes would postpone the hot operations start from 6/05 to 6/10 for the CH facility and 6/05 to 6/12 for the RH facility. These issues are now being negotiated.

In order to develop preliminary cost estimates it was necessary to select technologies that would be used in both the CH and RH facilities. Larbi reviewed the technologies selected and stated that almost all of them are commercially available now. For sorting/repacking, in both the CH and RH facility, off-the-shelf material handling equipment is available and meets the current functional requirements. The size reduction process equipment would also be off-the-shelf equipment for the CH and RH facilities. Molten salt oxidation was chosen for the PCB treatment for CH waste and the solidification/neutralization/deactivation of liquids/sludge for RH waste. For solidification/neutralization/deactivation of aqueous streams in the CH facility Portland cement would be used. The only technology not yet developed that may be needed is for the assay of RH waste. An NDA system similar to that used for CH waste was selected for estimating costs. All of the above technologies are subject to change due to WIPP operating parameters and waste characterization not being fully defined. This would be clarified during the engineering studies phase of the project.

The total cost estimate was $45 million with $15.9 million for CH waste, $28.1 million for RH waste, and $780K for retrieval. This is a very early estimate and the facilities are sized to be used over 20 years to keep the throughput and thus the equipment/facility size smaller. The next step in the process is to perform engineering studies that include characterizing waste by record review and determining WIPP requirements and operating capabilities for RH waste. This is a TPA milestone. The next step is to develop functional design criteria, which is also a TPA milestone. After the criteria is developed then technologies are selected, the facility/location/type is selected, the conceptual design prepared and finally, the project is implemented. All of these follow-on actions are, of course, dependent on funding from DOE.

Mixed Waste Subgroup Meeting Attendees – 08/10/00

Bill Bonner	PNNL	372-6263
Larbi Bounini	WMH	376-4650
Tina Masterson-Heggen	Ecology	736-5701
Ken Quigley	WMH	376-7779
Greg Sinton	DOE-RL	373-7939
Jim Sloughter	FDH-TM	375-2413
Steve Weakley	PNNL	372-4275
Rick Wible	DOE-RL	372-4776